

**RESOURCE ASSESSMENT**

**FOR THE**

**SHAVERS FORK WATERSHED**  
**(Hydrologic Unit: 05020004010)**

**SEPTEMBER 1999**

**PREPARED BY:**

**WV CONSERVATION PARTNERSHIP  
USDA NATURAL RESOURCES CONSERVATION SERVICE  
TYGARTS VALLEY SOIL CONSERVATION DISTRICT  
SHAVERS FORK COALITION  
MONONGAHELA NATIONAL FOREST**

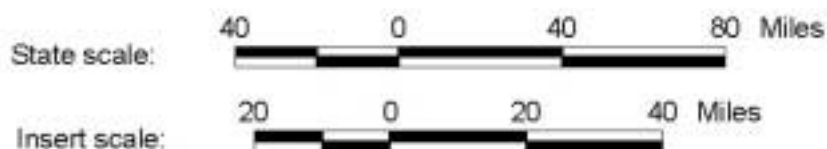
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Location Map  
of  
Lower Shavers Fork  
Watershed  
Tucker and Randolph Counties  
West Virginia



# Watershed Map of Lower Shavers Fork Randolph and Tucker Counties West Virginia



**Legend**

- Roads and trails
- Contour lines (50 meter)
- Streams and waterbodies
- County boundary
- Watershed boundary (approx.)



1:40000

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## **INTRODUCTION**

The Lower Shavers Fork Watershed is located in central Randolph County and in the southwestern part of Tucker County, West Virginia. This assessment covers the area from Bemis flowing North to the mouth at Parsons, for a stream channel length of 79,000 feet or 15 miles on main stem Shavers Fork. The average width of the main channel is 70 feet. There are many tributaries, all of which are on very steep gradient.

The watershed encompasses 80,637 acres or about 126 square miles. The topography has rugged features with steep side slope, narrow ridges and narrow valleys. The elevation ranges from 3,923 feet near Bemis to 1,620 feet above mean sea level at Parsons.

The watershed has two organized and active watershed associations. The Friends of the Cheat cover a much larger watershed of which the Shavers Fork is a sub-watershed. The Shavers Fork Coalition covers the lower Shavers Fork and the Upper Shavers Fork. The Upper Shavers Fork has a current Watershed assessment underway with cooperation between the Forest Service and the Shavers Fork Coalition. The Upper Shavers Fork is predominantly National Forest Land.

Over the past two years the SFC has prioritized issues through community meetings and is beginning to identify opportunities for solutions. One high priority issue is flood-related erosion. The SFC has held one public forum focusing on the hydraulic function of floods and has also sponsored a comprehensive workshop introducing watershed assessment and Rosgen's classification system. Concurrently, students from D&E College and SFC volunteers have begun to assess the Shavers Fork for potential problem areas. One flood impacted watershed was identified as a high priority concern based on landowners interest, probability for restoration project success and pertinence to other areas in the region (geologically, morphologically, and land use). Stream segments of Pheasant Run of the Shavers Fork has since been classified with Rosgen stream types. Monumented cross sections have been established to monitor long-term change on both an inhabited and uninhabited floodplain in the same area.

The major issues or concerns with the watershed were identified through public meetings held in locations throughout the watershed with the Association. The purpose of these meetings was to gain public input regarding these issues

## **ISSUE OR CONCERN**

### **Water Quality**

#### **Flooding**

#### **Land Use**

This document represents a cursory assessment at the watershed level that will highlight problems and opportunities for further work. The study, by design, is short and concise in scope. It will serve as a foundation document that can be used (and supplemented if necessary) to seek funds of all types from federal, state, local, or private sources.

## **SOCIAL and ECONOMIC CHARACTERISTICS and IMPACTS**

### **Population:**

The Shavers Fork Watershed covers portions of two counties in West Virginia – Randolph and Tucker. This assessment covers only the portion of the watershed from Bemis downstream to Parsons. Within the watershed, the only incorporated town is Parsons, Tucker County, where Shavers Fork watershed joins the Cheat River. The total population of Parsons is 1,440 persons, with most of those persons residing downstream of the confluence of the Cheat Rivers and Shavers Fork. The watershed is very rural, encompassing portions of the Fernow Experimental Forest, the Otter Creek Wilderness Area, and the Stuart Recreation Area. There are small, unincorporated settlements along Shavers Fork including Bemis, Flint, Weese, Bowden, Faulkner, Fairview, Pleasant Run, and Porterwood. This watershed is rural and sparsely populated, with homes and farmsteads widely scattered along the paved and gravel roads that traverse the mountains. Along Shavers Fork in Randolph County, population is estimated at 700 persons. Population per square mile in these two counties averaged 22.5 persons, compared to the state average of 74.5 persons per square mile, indicating the sparsely populated nature of the area. Population decreased by about 11 percent in Tucker County and 3 percent in Randolph County from 1980 to 1990. Less than one percent of the population is non-white.

### **Employment:**

Employment information is available for Tucker and Randolph Counties, which describes an area larger than just the Shavers Fork Watershed, but will be descriptive for the watershed as well. Residents in the Shavers Fork Watershed are predominately employed in natural resource based industries and service jobs. Leading industries include lumber, furniture, coal, agriculture products, and scattered manufacturers. Unemployment rates in these two counties averaged 11.2 percent in March 1999, which is above the state average of 7.9 percent and significantly above the national average of 4.4 percent. There are no large towns within an hour's drive of the watershed, limiting the opportunity for residents to commute to major job markets.

## **Income:**

For this assessment, income information for Tucker and Randolph Counties was used to describe the Shavers Fork Watershed. Per capita income in 1996 was \$15,696 which is below the state statistic of \$18,225, and well below the national median of \$24,436. Poverty in Randolph County stands at 21.9 percent and Tucker County at 17 percent compared to 19.7 percent statewide.

## **LAND USE**

The dominant soil types of the watershed are the Gilpin Association in the uplands making up 30% of the watershed and the DeKalb – Buckhannon Association on mountain uplands and foot slopes making up 30% of the watershed.

The Barbour – Pope – Sequatchie Association on Bottomlands and terraces make up about 25% of the watershed.

Woodlands and grassland are the dominant land uses in the watershed. The primary agriculture activity is animal husbandry. Most of the grazing animals are cattle, but sheep are also present. The following table breaks down the land use distribution of the watershed.

<b><u>Land Use</u></b>	<b><u>Percentage</u></b>	<b><u>Acres</u></b>
Woodland	92.9	74,872
Grassland	4	3,140
Urban	1	500
Cropland	0.1	95
Other	2	2030
<b>Total</b>		<b>80,637</b>



## **PASTURELAND**

The 3,140 acres of pasture grassland within the watershed has an average slope of 25-35%, even though a small percentage (25%) of the floodplain areas exists as grassland. A majority of the areas have an average cover of 65% consisting of bluegrass, white clover, and orchard grass, with some areas having a mixture of lower quality grasses. Approximately 75% of the grassland area are eroding at a rate of “T” or above. Most of the soils in the watershed have a low to moderate supply of basic plant nutrients, making an application of lime and fertilizer necessary. Organic matter in general is low. Average pH on grassland areas is in the 5.5 –5.9 range. Areas which typically have the initial spring growth taken as hay and fertilized for second growth grazing have a high pH and available nutrient base. Some areas experience problems with increased sediment and nutrient loads in streams due to winter feeding locations, and lack of improved animal watering facilities. Common management for the watershed is continuous grazing with both mechanical and chemical brush control. Applications of lime and fertilizer are made on the average of once every 3-5 years, at which time soil tests are taken by those who utilize the service.

## **FARMSTEADS (AG WASTE)**

A common practice of most of the agricultural land users throughout the watershed is to feed and/or confine livestock to more level low lying areas through the winter, often due to calving, close proximity to the farmstead, or more often due to the steepness of the pastureland. Much of the farming operation exists at or adjacent to the farmstead, which in turn usually exists near small streams. A large percentage of the low lying areas are harvested for hay and since most hay is in round bale form they are also stored outside in the same area. The hay is then moved in the winter as needed, and fed on the same areas. Most animal waste from barns or other confined areas is stacked nearby and spread on the fields in the spring. The water is generally not tested for nutrient value and usually not considered when applications of commercial fertilizer are made. There are no large confined feeding operations in the watershed; approximately 90% are part-time farmers with small beef cattle operations, while nearly 100% of the farmers in the area are LRF's (limited Resource Farmers).

## **CROPLAND**

Cropland in the watershed makes up a small portion, 95 acres, of the total acreage. Corn is the major crop grown. Most of the cropland is on 3-8% slopes with moderate fertility. Manures are applied at estimated rates, while most commercial fertilizers are applied according to soil tests. Typical management for these areas is in cropping rotation with mostly conventional tillage being utilized. Typical concerns are education on nutrient management to inform landusers on both amount and timing of nutrient application. The major problem exists with economics and the high percentage of Limited Resource Farmers.

## **FOREST LAND**

The Shavers Fork watershed contains approximately 75,000 acres of woodland.

Due to the geographic location, elevation differences, and varying weather conditions on the Monongahela National Forest and surrounding private land, the forest timber types seldom fit the normal Society of American Foresters definitions for specific types. In this area, plant species common to northern climates intermingle with plant species common to southern climates. This results in stands with a great number of species and

species mixes not found in the north or south. Over 30 commercial species occur on the Forest and it is not uncommon to find 10 to 15 commercial species growing in a 10-acre stand. Under natural conditions, a single species type name will indicate that one species represents 51 percent or more of the total stocking, whereas in a multiple-species type, groups of species will represent 51 percent or more of the total stocking.

### **APPALACHIAN MIXED HARDWOODS TYPE**

Appalachian mixed hardwoods, commonly called cove hardwoods, is a forest complex found in rich, moist locations and is characterized by great diversity in species composition. This type is found in topographic coves, on lower slopes with a northern or eastern aspect, and on gentle terrain. Stands are characterized by a large number and variety of plant species. Overstory composition may range from nearly pure stands of northern red oak or yellow-poplar to typical mixtures of 20 or more commercial species. Among the more important trees are: yellow-poplar, sugar maple, northern red oak, hickories, black cherry, white oak, basswood, cucumbertree, white ash, red maple, sweet birch, beech, elm and black locust. The mixtures vary with site quality, past treatment, elevation, and latitude. Conifer species can include white pine, red spruce, and hemlock.

### **ALLEGHENY HARDWOOD TYPE**

The Allegheny hardwood, or cherry-maple type, is composed primarily of black cherry, red maple, and white ash with beech, hemlock, yellow birch, sweet birch, yellow poplar, and cucumber as common associates. Allegheny hardwoods are second - and third-growth forests that followed extensive commercial clear cutting during the railroad-logging era of 1890 to 1920. Although generally considered even-aged, many stands contain residuals from the previous stand, and some stands that were cut less heavily are mixtures of two to four age classes. Allegheny hardwoods represent an early – to mid successional stage that would ultimately lead to a climax forest dominated by beech, hemlock, and sugar maple if left undisturbed for a long period of time. Natural regeneration is relied on for the reestablishment of nearly all of these stands after cutting and natural disturbance.

## **WETLANDS**

The National Wetlands Inventory (NWI) has documented 133 wetlands in the Shavers Fork of the Cheat River watershed. They range in area from less than 1 acre to about 15 acres. About 65% are classified as Palustrine. Many of these are either persistent emergent or deciduous broad-leaved forested, and they may be temporarily or semi-permanently flooded. A great number of the wetlands are classified as Palustrine permanently flooded impoundments having unconsolidated bottoms. About 35% of the remaining wetlands are classified as Riverine – upper or lower perennial permanently flooded impoundments with unconsolidated bottoms. The approximate range of the total area covered by wetlands in the entire watershed is 200 acres.

## **FISH AND WILDLIFE**

The land and waters of the area provide the habitat for a wide variety of fish and wildlife. This variety results from land use diversity, relatively sparse human population, and limited encroachment. Forestland occupies about 90% of the watershed with the remainder being grassland and other uses. Urban land is a low one- percent of the total. The interspersions of forestland, farmland, and other land uses, provides a good habitat mix for wildlife.

Populations of big game animals in the Shavers Fork Watershed are high. The white tail deer buck harvest in the area is about average for the state. The turkey harvest in the area is above average for the state.

Good populations of small game are also found in the Shavers Fork Watershed. Hunting pressure is moderate to heavy with the heaviest pressure on the accessible National Forest Land.

Good populations of gamefish inhabit the main Shavers including small mouth bass, rock bass, and sunfish. Shavers Fork is one of the most heavily fished put- and – take trout fisheries in West Virginia. Many of the tributaries support fishable populations of native brook trout although the WV DNR does not publish lists of native trout streams.

## THREATENED AND ENDANGERED SPECIES

Endangered species that could occur in the Shavers Fork Watershed are the Indiana bat, *Myotis sodalis*; the Virginia big-eared bat, *Corynorhinus townsendii virginianus*; the Virginia northern flying squirrel, *Glaucomys sabrinus fuscus* and the running buffalo clover, *Trifolium stoloniferum*. A threatened species that could occur in the referenced area is the Cheat Mountain salamander, *Plethodon nettingi*. A number of species of concern could occur in this area. Species of Concern are those for which the U. S. Fish and Wildlife Service has information indicating that protection under the Endangered Species Act may be warranted, but for which it lacks sufficient information status and threats to proceed with preparation of a proposed listing. On December 5, 1996 the Service announced their final decision to discontinue efforts to maintain a national list of these species. While species of concern lack formal recognition as candidates for possible future listing under the Endangered Species Act, the Service and the West Virginia Division of natural Resources encourage continued consideration of these species in environmental planning.

Species of concern for this area include the eastern woodrat, *Neotoma floridana*; the Eastern small-footed myotis, *Myotis subulatus leibii*; the Southern water shrew, *Sorex palustris punctulatus*; the Appalachian cottontail rabbit, *Sylvilagus obscurus*; the Cerulean warbler, *Dendroica cerulea*; the hellbender, *Cryptobranchus alleganiensis*; the Cheat minnow, *Rhinichthys bowersi*; the Isopod, *Caecidotea cannulus*; the butternut, *Juglans cinerea*; and the Barbara's buttons, *Marshallia grandiflora*.

## SURFACE WATER QUALITY

Limited sample data collected by the Shavers Fork Coalition in 1999 would indicate that some fecal coliform counts far exceed the EPA safe limit of 200 per 100 ml for swimming. The highest levels found were on Haddix Run but Shavers Fork Main Stem also has samples exceeding this limit.

## MINING

A few abandoned coal surface mines are located in the lower Shavers Fork. Acid mine drainage does not appear to be a problem.

One active limestone quarry is located near Bowden as well as an abandoned limestone underground mine.

A mineral resource map found in volume one of the Randolph County Water Resources Assessment and Implementation Plan shows the extent of coal and limestone mining.

### **STREAMBANK EROSION**

Streambank erosion and sedimentation of Shavers Fork remain as high issues of concern in the watershed. Much of this is due to the steepness of the stream.

The Shavers Fork Coalition has set up permanent monitoring sites on two tributaries, Slab Camp Run and Pheasant Run. Rosgen assessments have been underway for three years to monitor changes in the dimensions and locations of the streams.

### **FLOOD DAMAGES**

The Shavers Fork Watershed has experienced 3 major floods since 1985. Flood damages have been severe in Parsons and in the Bowden areas where the majority of the inhabitants live. The floodplain is narrow with a steep gradient and a large steep watershed feeding it that causes much concern for flooding.

The Parsons community has been successful in obtaining funding to protect the area along Shavers Fork from a 25-year flood event with a cleaning of the channel and a diking system.

Randolph and Tucker Counties have also formed a Partnership for disaster mitigation and recovery through FEMA's Project Impact. This partnership is made up of 26 public sector partners and 40 private sector partners working together. Plans are underway for an early warning system to be installed.

### **GROUNDWATER QUALITY**

Some of the most productive aquifers in the area are found from Stewart Park and Bowden upstream and are comprised of the New River and Kanawha formations of the Lower Pennsylvanian Allegheny Formation. Highly productive wells averaging 50 to 100 gallons per minute are expected with wells with yields of 1000 gpm possible.

The area from Stuart's Park downstream to Parsons has limited productivity in association with the fluvial, lacustrine, and glaciofluvial deposits of the quaternary alluvium. Water quality is generally good with the exception of elevated iron contents, but yields are generally poor to moderate. Expected yields are 10 gpm or less.

The watershed depends on groundwater as a domestic drinking water supply except for the town of Parsons, which has a community surface water treatment facility serving 1,937 customers.

Groundwater quality can be affected in geology by surface water contamination.

This watershed relies on septic systems except for the town of Parsons which has a community treatment facility.

## **CULTURAL RESOURCES**

This watershed contains numerous cultural resources including at least one known historic property listed on the National Register of Historic Places, the Tucker County Courthouse and Jail located in Parsons. This watershed also contains at least 16 (sixteen) known prehistoric or historic resources which have not been evaluated for register eligibility.

More prehistoric and historic sites are most likely present but have yet to be discovered. Any future development needs to assess its potential impacts on any cultural resources that may be present, whether these resources are known or unknown.

## **REFERENCES and DATA SOURCES**

References and data sources for this assessment can be found in the Guidance Document for Watershed Assessment Procedures developed by the WV Conservation Partnership. Detailed references and data are available upon request and are contained in the supporting document file.